Remarks

Claims 1-32 are in the application, of which claims 1, 16, 27, and 30 are in independent form. As noted in the March 26, 2004 Office action, the original application included two claims that were numbered claim "11." The second of these claims, as well as the following claims have been renumbered by the Office (e.g., claim 31 of the original specification is referred to as original claim 32 herein). In accordance with the examiner's suggestion, dependent claims 17-26, 28-29, and 31-32 are amended to correct their dependencies in accordance with the renumbering of claims by the Office.

Drawing Figs. 6 and 7 are amended to correct typographical errors as noted above.

Claims 1, 2, 4, 5-7, 11, 14-19, and 23-32 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,570,253 of Lim et al. Applicant traverses and respectfully requests reconsideration in view of the following remarks.

Regarding claims 1, 15, 16, and 25-32, the March 26, 2004 Office action states that:

> "Lim does not explicitly disclose that the dielectric structure has an overall capacitance density of greater than 25 NF/mm^2. However, the dielectric structure is formed in the same way as Applicant's dielectric structure, wherein layers of aluminum oxide are alternated with layers of niobium oxide that have been deposited using ALD such that the layers have a thickness of anywhere from several angstroms to dozens of angstroms. Therefore, it appears that the dielectric structure of Lim would inherently possess the function of having a capacitance density of greater than 25 nF/mm^2." (citing In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971) and In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980))

Similar assertions are made in the Office action with respect to the capacitance density and leakage current density limitations found in claims 6 and 7. Applicant is aware of the holding of In re Swinehart, empowering the Patent Office to shift the burden to an applicant to show that the prior art does not possess the characteristic relied on when the characteristic is believed to have been an inherent characteristic of the prior art. However, this power is limited to instances wherein the claimed characteristic is necessarily present in the prior art. See In re Orlich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981); Crown Operations Int'l, Ltd. v. Solutia, Inc., 289 F.3d 1367, 62 USPQ.2d 1917 (Fed. Cir. 2002) (citing Orlich). Copies of the Orlich and Crown Operations decisions are attached for the examiner's convenience. In Orlich, the Court of Customs and Patent Appeals stated that inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." 666 F.2d at

581 (quoting Hansgirg v. Kemmer, 26 CCPA 937, 940, 102 F.2d 212, 214, 40 USPQ 665, 667 (1939)); see also Crown Operations , 289 F.3d at 1377 ("If the two percent reflectance limitation is inherently disclosed by the Gillery patent, it must be necessarily present and a person of ordinary skill in the art would recognize its presence.").

Here, the Lim et al. patent does not necessarily disclose a structure possessing the claimed high capacitance density and low current leakage characteristics. As indicated in the graph of FIG. 6 and the text at paragraphs [0054] to [0056] of the present application, as the thickness of a current leakage inhibiting layer increases, its leakage current decreases. Conversely, as the thickness of a dielectric structure decreases, its capacitance density increases. But dielectric structures thinner than 49 angstroms will exhibit markedly elevated leakage current densities, apparently due to quantum tunneling effects. As applicant's test data suggests, the dielectric structures disclosed by Lim et al. would not necessarily possess the claimed current density and leakage current density characteristics. For example, some of the dielectric structures proposed by Lim et al. have a leakage current inhibiting layer thicker than 45 angstroms and, thus, may not achieve a capacitance density of greater than 25 nF/mm^2. Similarly, some of the dielectric structures proposed by Lim et al. have an overall thickness of less than 49 angstroms and, thus, may not achieve the low leakage current densities claimed by applicant. Because the devices proposed by Lim et al. would not necessarily exhibit the claimed high capacitance density and low leakage current densities, applicant submits that the claimed characteristics cannot be said to be inherently anticipated by the Lim et al. patent and that the grounds for rejection should be withdrawn.

Moreover, Lim et al. focuses on multi-layer structures including layers of between 2 and 5 angstroms of aluminum oxide and between 2 and 5 angstroms of titanium oxide. Layers having a thickness "from several angstroms to dozens of angstroms" are mentioned in just two short sentences of the Lim et al. patent. Likewise, niobium oxide is just one alternative to titanium oxide proposed by Lim et al. and is listed amongst eight different oxides proposed. (col. 9, lines 31-36). Because Lim et al. do not specifically teach the particular dielectric structures, thickness ranges, and compositions discovered by the present inventors to exhibit the claimed capacitance density and leakage current density characteristics, it appears that the Lim et al. patent would not have been enabling to one of ordinary skill in the art. In order for a reference to form a basis for an anticipation rejection, it must contain an enabling disclosure of the subject matter relied upon for the rejection. See, e.g., In re Hoeksema, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). Thus,

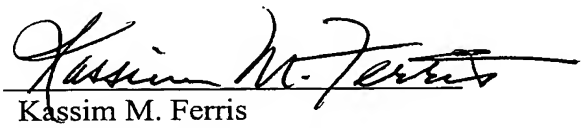
applicant submits that Lim et al. cannot be relied upon for inherently disclosing the claimed characteristics, but only for what Lim et al. would have taught to a person of ordinary skill in the art.

Claims 3, 8-10, 12-13, and 20-22 stand rejected on obviousness grounds under 35 U.S.C. § 103(a) over Lim et al. in view of several other patents listed in the Office action. Applicant traverses and requests reconsideration in view of the arguments presented above with respect to independent claims 1 and 16, from which claims 3, 8-10, 12-13, and 20-22 depend.

Applicant believes the grounds for rejection are improper and respectfully requests that they be withdrawn.

Respectfully submitted,

Planar Systems, Inc.

By 
Kassim M. Ferris
Registration No. 39,974

STOEL RIVES LLP
900 SW Fifth Avenue, Suite 2600
Portland, OR 97204-1268
Telephone: (503) 224-3380
Facsimile: (503) 220-2480
Attorney Docket No. 11429/17:2